# Louisville Metro Air Pollution Control District

**850 Barret Ave., Louisville, Kentucky 40204**

**June 05, 2014**

## Title V Statement of Basis

**Company:** Eckart America Corporation

**Plant Location:** 4101 Camp Ground Road, Louisville, KY 40211

| **Date Application Received:** | **Application Number:** |
|---|---|
| 7/28/2005 | 60468 |
| 6/13/2010 | 10023 |
| 1/15/2013 | 53401 |

**Public Comment Date:** 06/05/2014 **Proposed Permit Date:** 06/05/2014

**District Engineer:** Chris Gerstle **Permit No:** 143-97-TV(R1)

**Plant ID:** 187 **SIC Code:** 3399 **NAICS**: 331314 **AFS:** 00187

**Introduction:**
This permit will be issued pursuant to: (1) District Regulation 2.16, (2) Title 40 of the Code of Federal Regulations Part 70, and (3) Title V of the Clean Air Act Amendments of 1990.
Its purpose is to identify and consolidate existing District and Federal air requirements and to provide methods of determining continued compliance with these requirements.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide ($NO_2$), carbon monoxide (CO), 1 hr and 8 hr ozone ($O_3$), and particulate matter less than 10 microns ($PM_{10}$); and is a non-attainment area for particulate matter less than 2.5 microns ($PM_{2.5}$) and partial non-attainment for sulfur dioxide ($SO_2$).

**Application Type/Permit Activity:**

[ ] Initial Issuance

[ ] Permit Revision
[ ] Administrative
[ ] Minor
[ ] Significant

[X] Permit Renewal

**Compliance Summary:**

[X] Compliance certification signed
[ ] Source is out of compliance
[ ] Compliance schedule included
[X] Source is operating in compliance

## I. Source Information

**1. Product/Process Description:** The source produces aluminum powder and paste.

**2. Site Determination:** There are no other facilities that are contiguous or adjacent and under common control.

**3. Emission Unit Summary:**

| Unit | Name |
|---|---|
| U-1 | Boiler Room |
| U-2 | Hot Air Furnace |
| U-3 | Hot Air Direct Convey and Air Slide System |
| U-4 | Hot Air Bin Fill |
| U-6 | Classifiers |
| U-7 | Blending/Repack (Insignificant Activity emission unit) |
| U-8 | Rescreens (Insignificant Activity emission unit) |
| U-13 | Paste (Insignificant Activity emission unit) |
| U-14 | Aluminum Paste Dryers |
| U-15 | Mixers (Insignificant Activity emission unit) |
| U-16 | AST Farm (Insignificant Activity emission unit) |
| U-17 | Stills |
| U-18 | Parts Washers (Insignificant Activity emission unit) |
| U-22 | New Paste (Insignificant Activity emission unit) |
| U-23 | Solvent Exchangers (Insignificant Activity emission unit) |
| U-24 | Mills 13/14 (Insignificant Activity emission unit) |
| U-25 | Zinc Mill (Insignificant Activity emission unit) |
| U-27 | Solvent Wash (Insignificant Activity emission unit) |
| U-28 | Cooling Tower |
| IE-EG | Emergency Generator(s) (Insignficant Activity emission unit) |

**4. Permit Revisions:**

| Revision No. | Date or Reissuance | Public Notice Date | Type | Emission Unit | Description |
|---|---|---|---|---|---|
| Initial | 1/29/2001 | 8/28/2001 | Initial | Entire Permit | Initial Issuance |
| R1 | | 6/5/2014 | Renewal | Entire Permit | Permit Renewal, Incorporate STAR TAC requirements; Incorporate Construction Permits; removed equipment taken out of service |

**5. Fugitive Sources:** Fugitive emissions of dust from any part of the plant are subject to Regulation 1.14, *Control of Fugitive Particulate Emissions*.

**6. Plant-wide Emission Summary:**

| Pollutant | District Calculated Actual Emissions 2012 Data (tpy) | Major Source Status (based on PTE) |
|---|---|---|
| **CO** | 2.96 | No |
| **$NO_x$** | 3.52 | No |
| **$SO_2$** | 0.02 | No |
| **$PM/PM_{10}$** | 22.72 | Yes |
| **VOC** | 62.10 | Yes |
| **Total HAPs** | 0.81 | No |
| **GHG** | 11,948 | No |

*Note: The GHG are potential to emit (PTE) emissions not actual emissions.

**7. Applicable Requirements:**

[X] PSD [X] 40 CFR 60 [X] 40 CFR 63 [X] SIP
[X] NSR [ ] 40 CFR 61 [X] District-Origin [X] Other

**8. MACT Requirements:**

| | |
|---|---|
| 40 CFR 63, Subpart ZZZZ | National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines |

**9. Referenced non-MACT Federal Regulations in Permit:**

| | |
|---|---|
| 40 CFR 60, Subpart IIII | Standards of Performance for Stationary Compression Ignition Internal Combustion Engines |
| 40 CFR Part 64 | Compliance Assurance Monitoring for Major Stationary Sources |
| 40 CFR 80, Subpart I | Motor Vehicle Diesel Fuel; Nonroad, Locomotive, and Marine Diesel Fuel; and ECA Marine Fuel |
| 40 CFR 89, Subpart B | Emission Standards and Certification Provisions |
| 40 CFR 1039, Subpart B | Emission Standards and Related Requirements |

## II. Regulatory Analysis

**1. Acid Rain Requirements:** The source is not subject to the Acid Rain Program.

**2. Stratospheric Ozone Protection Requirements:** Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. This source does not manufacture, sell, or distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.

**3. Prevention of Accidental Releases 112(r):** The source does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR Part 68, Subpart F, and District Regulation 5.15, *Chemical Accident Prevention Provisions*, in a quantity in excess of the corresponding specified threshold amount. If the source becomes subject to 40 CFR 68 and Regulation 5.15, the source shall comply with the Risk Management Program and Regulation 5.15 and submit a Risk Management Plan to:

RMP Reporting Center
P.O. Box 3346
Merrifield, VA 22116-3346

**4. 40 CFR Part 64 Applicability Determination:** The source is major for PM and a control device is needed to achieve compliance with District Regulation 7.08 for Emission Points E-3, E-8, E-13, and E-15. In accordance with 40 CFR 64, Compliance Assurance Monitoring for Major Stationary Sources, the source was required to propose a CAM plan for PM, based on current process and control device requirements and practices. The CAM plan was received by the District on January 15, 2013.

**5. Basis of Regulation Applicability**

a. **Plant-wide**

Eckart is a major source for $PM/PM_{10}$ and VOC. Regulation 2.16-*Title V Operating Permits* establishes requirements for major sources.

Regulations 5.00, 5.01, 5.20, 5.21, 5.22 and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards.

Eckart America Corporation submitted their STAR Environmental Acceptability Determination to the District on **March 31, 2009, July 27, 2012, February 6, 2014, and May 16, 2014**. Per the most recent EA demonstration, the AERMOD 8-hour MAC for aluminum was 55.04022 $\mu g/m^3$. Using APCD's equation 4 (Regulation 5.21, section 2.2), the resulting HQ is 1.10. The MAC is located on industrial property. The industrial HQ is below the $EA_{nc}$ of 3.0. An AERMOD run was also completed with just the non-industrial receptor points. The residential 8-hour MAC for aluminum was 37.00945 $\mu g/m^3$. The residential HQ is 0.74, which is below the $EA_{nc}$ of 1.0. Eckart is in compliance with the STAR EAGs.

The TAC emissions from an insignificant activity (as defined in Regulation 2.16) are considered to be "de minimis emissions" by the District. (Regulation 5.21, section 2.3)

The TAC emissions from the combustion of natural gas are considered to be "de minimis emissions" by the District. This includes all of the emissions from a process or process equipment for which the only emissions are the products of combustion of natural gas, such as from a natural gas-fired boiler or turbine, but does not include the other emissions from a process or process equipment that are not the products of the combustion of natural gas. (Regulation 5.21, section 2.7)

Regulation 2.16, sections 4.1.9.1 and 4.1.9.2 requires sufficient monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the District upon request.

Regulation 2.16, section 4.3.5, requires stationary sources for which a Title V is issued shall submit an annual compliance certification by April 15. In addition, as required by Regulation 2.16, section 4.1.9.3, the source shall submit compliance reports at least every six months to show compliance with the permit. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.16, section 3.5.11.

Regulation 2.16, section 4.3.1 establishes testing requirements to assure compliance with the terms and conditions of the permit. Thus, an EPA Reference Method performance test shall be performed every 10 years to determine the emission rate and control efficiency.

b. **Applicable Regulations:**

| Regulation | Title | Type |
|---|---|---|
| 1.05 | Compliance with Emission Standards and Maintenance Requirements | SIP |
| 2.01 | General Application | SIP |
| 2.02 | Air Pollution Regulation Requirements and Exemptions | SIP |
| 2.03 | Authorization to Construct or Operate; Demolition/Renovation Notices and Permit Requirements | SIP |
| 2.04 | Construction or Modification or Major Sources In or Impacting Upon Non-Attainment Areas (Emission Offset Requirements) | SIP |
| 2.05 | Prevention of Significant Deterioration of Air Quality | SIP |
| 2.07 | Public Notification for Title V, PSD, and Offset Permits; SIP Revisions; and Use of Emission Reduction Credits | SIP |
| 2.08 | Emissions Fees, Permit Fees, Permit Renewal Procedures, and Additional Program Fees | Local |
| 2.09 | Causes for Permit Modification, Revocation, or Suspension | SIP |
| 2.10 | Stack Height Considerations | SIP |
| 2.11 | Air Quality Model Usage | SIP |
| 2.16 | Title V Operating Permits | SIP |
| 4.01 | General Provisions for Emergency Episodes | SIP |
| 4.02 | Episode Criteria | SIP |
| 4.03 | General Abatement Requirements | SIP |
| 4.07 | Episode Reporting Requirements | SIP |
| 5.00 | Standards for Toxic Air Contaminants and Hazardous Air Pollutants | Local |
| 5.01 | General Provisions | SIP |
| 5.02 | Federal Emission Standards for Hazardous Air Pollutants Incorporated by Reference | Local |
| 5.14 | Hazardous Air Pollutants and Source Categories | Local |
| 5.15 | Chemical Accident Prevention Provisions | Local |
| 5.20 | Methodology for Determining Benchmark Ambient Concentration of a Toxic Air Contaminant | Local |
| 5.21 | Environmental Acceptability for Toxic Air Contaminants | Local |
| 5.22 | Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant | Local |
| 5.23 | Categories of Toxic Air Contaminants | Local |
| 6.01 | General Provisions (for *Existing Affected Facilities*) | SIP |
| 6.02 | Emission Monitoring for Existing Sources | SIP |
| 6.09 | Standards of Performance for Existing Process Operations | SIP |
| 6.13 | Standard of Performance for Existing Storage Vessels for Volatile Organic Compounds | SIP |
| 6.18 | Standards of Performance for Solvent Metal Cleaning Equipment | SIP |
| 6.24 | Standard of Performance for Existing Sources Using Organic Materials | SIP |
| 7.01 | General Provisions (for *New Affected Facilities*) | SIP |
| 7.02 | Federal New Source Performance Standards Incorporated by Reference | SIP |
| 7.06 | Standards of Performance for New Indirect Heat Exchangers | SIP |
| 7.08 | Standards of Performance for New Process Operations | SIP |
| 7.12 | Standard of Performance for New Storage Vessels for Volatile Organic Compounds | SIP |

| Regulation | Title | Type |
|---|---|---|
| 7.25 | Standard of Performance for New Sources Using Volatile Organic Compounds | SIP |
| 40 CFR 60 Subpart IIII | Standards of Performance for Stationary Compression Ignition Internal Combustion Engines | Federal |
| 40 CFR 63 Subpart ZZZZ | National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines | Federal |
| 40 CFR 64 | Compliance Assurance Monitoring for Major Stationary Sources | Federal |
| 40 CFR 80 Subpart I | Motor Vehicle Diesel Fuel; Nonroad, Locomotive, and Marine Diesel Fuel; and ECA Marine Fuel | Federal |
| 40 CFR 89 Subpart B | Emission Standards and Certification Provisions | Federal |
| 40 CFR 1039 Subpart B | Emission Standards and Related Requirements | Federal |

c. **Basis for Applicability**

| Regulation | Basis for Applicability |
|---|---|
| 1.05 | Establishes daily record keeping requirements for sources emitting 100 tons per year or more of VOC and all Control Technique Guidance (CTG) sources to demonstrate compliance with applicable portions of Regulation 6 and 7. |
| 2.03 | Establishes requirements for Permits to Construct and Operate |
| 2.05 | Establishes requirements for the prevention of deterioration of air quality in regions of the country that currently meet the NAAQS. |
| 2.16 | Title V source |
| 5.00 | Establishes definitions of terms used in the Strategic Toxic Air Reduction Program. |
| 5.01 | Establishes general provisions for process equipment from which a toxic air contaminant is or may be emitted. |
| 5.02 | Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants |
| 5.20 | Establishes the methodology for determining the benchmark ambient concentration of a toxic air contaminant. |
| 5.21 | Establishes the criteria for determining the environmental acceptability of emissions of toxic air contaminants. |
| 5.22 | Establishes the procedures for determining the maximum ambient concentration of a toxic air contaminant. |
| 5.23 | Establishes categories of toxic air contaminants. |
| 6.09 | Applies to each process operation that is not otherwise regulated by any other portion of Regulation 6 and was in existence or had a construction permit issued by the District by September 1, 1976. |
| 6.18 | Applies to cold cleaners. |
| 6.24 | Establishes VOC standards for affected facilities constructed before June 13, 1979. |
| 7.06 | Applies to each indirect heat exchanger having input capacity of more than one million BTU per hour commenced after September 1, 1976. |

| Regulation | Basis for Applicability |
|---|---|
| 7.08 | Equipment installed after September 1, 1976 and subject to the PM emission standard. |
| 7.12 | Storage tanks with a capacity greater than 250 gallons constructed after April 19, 1972 |
| 7.25 | Establishes VOC standards for affected facility constructed after June 13, 1979 for VOC. |
| 40 CFR 60 Subpart IIII | Applies to stationary CI internal combustion engines that commences construction after July 11, 2005. |
| 40 CFR 63 Subpart ZZZZ | Applies to existing, new, and reconstructed stationary engines.<br>The generators are stationary RICE located at an area source of HAP emissions, therefore 40 CFR 63 Subpart ZZZZ applies. |
| 40 CFR 64 | Applies to each pollutant specific emission unit that is subject to an emission limitation or standard; uses a control device to achieve compliance; and has pre-control emissions that exceed or are equivalent to the major source threshold.<br>CAM applies because the Atomization Furnace, Buhler A Conveyor Pod, and Tote/Drum Fill Stations are subject to emission limitations, use control devices to achieve compliance and have pre-control emissions that exceed the major source threshold. |
| 40 CFR 80 Subpart I | Regulation 40 CFR 60, Subpart IIII refers to regulations 40 CFR 80, Subpart I, 40 CFR 89, Subpart B, and 40 CFR 1039, Subpart B |
| 40 CFR 89 Subpart B | Regulation 40 CFR 60, Subpart IIII refers to regulations 40 CFR 80, Subpart I, 40 CFR 89, Subpart B, and 40 CFR 1039, Subpart B |
| 40 CFR 1039 Subpart B | Regulation 40 CFR 60, Subpart IIII refers to regulations 40 CFR 80, Subpart I, 40 CFR 89, Subpart B, and 40 CFR 1039, Subpart B |

d. **Emission Unit U-1 Boiler Room**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-1 | Boiler #5, natural gas fired only | STAR, 7.06 |
| E-2 | Boiler #4, natural gas fired only | |
| E-138 | Space Heater | STAR |

ii. **Standards/Operating Limits**

1) **PM**

In accordance with Regulation 7.06, section 4.1.4, PM emissions are limited to 0.342 pounds per million BTU actual total heat input for Emission Points E-1 and E-2.

$$E = 1.919 \times (25.066)^{-0.535} = 0.342 \text{ lb/mmBTU}$$

2) **Opacity**

The boilers are subject to the opacity standards in accordance with Regulation 7.06, section 4.2.

3) **$SO_2$**

In accordance with Regulation 7.06, section 5.1.1, $SO_2$ emissions are limited to 1.0 pounds per million BTU actual total heat input for Emission Point Points E-1 and E-2 because the total heat input capacity is less than 145 million BTU per hour.

4) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

iii. **Monitoring, Record Keeping and Reporting**

**$SO_2$/PM/Opacity**

(a) A one-time PM and $SO_2$ compliance demonstration has been performed for the boilers, using AP-42 emission factors and combusting natural gas, and the emission standards cannot be exceeded. Therefore, there are no monitoring, record keeping, and reporting requirements for these boilers with respect to PM and SO2 emission limits.

(b) The District has determined that using a natural gas fired boiler will inherently meet the 20% opacity standard. Therefore, the company is not required to perform periodic monitoring to demonstrate compliance with the opacity standard.

e. **Emission Unit U-2 Hot Air Furnace**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-3 | Atomization Furnace | STAR, 6.28, 40 CFR 64 |
| E-4 | M-7 Screen Room | STAR, 7.08 |
| E-6 | M-8 Screen Room | |
| E-5a | Multicyclone Drum Loading | |
| E-7a | Multicyclone Drum Loading | |
| E-139 | Compressed Air Preheater | STAR |
| E-140 | Johnson Gas Appliance Nozzle Heater | |
| E-266 | Space Heater | |

ii. **Standards/Operating Limits**

1) **Opacity**

(a) Regulation 6.28, section 3.1 establishes an opacity standard.

(b) Regulation 7.08, section 3.1.1 establishes opacity standards.

2) **PM**

(a) Regulation 6.28, section 3.2 establishes a PM standard.

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-4 E-6, E-5a and E-7a is:

$E = 3.59 \times (0.75)^{0.62} = 3.00$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

f. **Emission Unit U-3 Hot Air Direct Convey and Air Slide System**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-8a | Buhler A Storage Tank | 2.05, STAR, 7.08, 40 CFR 64 |

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-8b | Buhler A Weigh Tank | STAR, 7.08 |
| E-8c | Buhler A Conveyor Pod | |
| E-9 | Rail Car Loading | 2.05, STAR, 7.08, 40 CFR 64 |
| E-229 | Docking/Transfer Station | STAR, 7.08 |
| E-141 | Air Slide Conveyor Pod | STAR, 6.09 |

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 6.09, section 3.1 and Regulation 7.08, section 3.1.1 establishes opacity standards.

2) **PM**

(a) In accordance with Regulation 6.09, Table 1, PM standard for Emission Point E-141 is:

$E = 4.10 \times (1.35)^{0.67} = 5.01$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-229 is:

$E = 3.59 \times (1.75)^{0.62} = 8.05$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(c) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-9 is:

$E = 3.59 \times (1.5)^{0.62} = 4.62$ lb/hr,

(d) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-229 is:

$E = 3.59 \times (1.35)^{0.62} = 4.32$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(e) Per construction permit 84-09-C, PM standard for Emission Point E-8a is 4.62 lb/hr.

(f) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-8a and E-9 combined in accordance with Regulation 2.05.

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

g. **Emission Unit U-4 Hot Air Bin Fill**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-11 | Large Powder Storage Tank 1 | 2.05, STAR, 7.08 |
| E-12 | Large Powder Storage Tank 2 | |
| E-13 | Tote/Drum Fill Station #1 | |

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-15 | Tote/Drum Fill Station #2 | |

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

2) **PM**

(a) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-13 and E-15 is:

$E = 3.59 \times (1.5)^{0.62} = 4.62$ lb/hr

(b) Per construction permit 84-09-C, PM standard for Emission Point E-11 and E-12 are 2.58 lb/hr each.

(c) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-11, E-12, E-13 and E-15 combined in accordance with Regulation 2.05.

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

h. **Emission Unit U-6 Classifiers**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-25 | 15,000 lb Tank | 2.05, STAR, 7.08 |
| E-26a | Classifier 1 Weigh Tank | |
| E-26b | Fines Bin | |
| E-26c | Buhler C Conveyor Pod | |
| E-26d | Drum Loading | |
| E-128 | 30,000 lb Tank | |
| E-128b1 | Buhler B Conveyor Pod | |
| E-128b2 | Classifier 2Weigh Tank | |

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

2) **PM**

(a) Per construction permit 84-09-C, PM standard for Emission Point E-25 is 4.12 lb/hr.

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-26a, E-26b, E-26c, and E-26d is:

$E = 3.59 \times (1.25)^{0.62} = 4.12$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(c) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-128, E-128a, and E-128b is:

$E = 3.59 \times (1.75)^{0.62} = 5.08$ lb/hr

(The source submitted a one-time demonstration on

February 21, 2014 that shows the potential uncontrolled PM emissions for Emission Points E-128a, and E-128b cannot exceed the PM emission standard.)

(d) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-25, E-26a, E-26b, E-26c, and E-26d combined in accordance with Regulation 2.05.

(e) In order to avoid PSD/Nonattainment NSR the permit contains a PM emission limit of <25 tons per 12 consecutive month period for emission points E-128, E-128b1, and E-128b2 combined in accordance with Regulation 2.05.

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

i. **Emission Unit U-7 Blending/Repack**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-27 | Gemco Tumble Blender | STAR, 7.08 |
| E-143 | Double Drum Tumbler | |
| E-147 | Drum Dumper | |
| E-148 | Riddler Screen | |
| E-230 | Screw Conveyor | |
| E-145 | Hopper | |
| E-146 | Bucket Fill | |

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

2) **PM**

(a) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-27 is:

$E = 3.59 \times (0.75)^{0.62} = 3.00$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-143, E-147, E-148, E-230, E-145, and E-146 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

j. **Emission Unit U-8 Rescreens**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-150 | Flake 100 Drum/Tote Unloading | STAR, 7.08 |
| E-152 | Flake 100 Staging Vessel | |
| E-154 | Flake 100 Rescreener | |
| E-156 | Flake 100 Drum Loading) | |
| E-158 | Powder 200 Drum/Tote Unloading | |
| E-160 | Powder 200 Staging Vessel | |
| E-162 | Powder 200 Rescreener | |
| E-164 | Powder 200 Drum Loading | |

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard.

2) **PM**

In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-150, E-152, E-154, E-156, E-158, E-160, E-162, and E-164 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

k. **Emission Unit U-13 Aluminum Paste Process**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-56 | Ball Mill 5 | STAR, 6.09, 6.24 |
| E-57 | Ball Mill 6 | STAR, 6.24, 7.08 |
| E-62a | T-72 (Mill 6 Overflow Tank) | STAR, 6.24 |
| E-66a | Screen 29 | |
| E-66b | Screen 30 | |
| E-66c | Screen 31 | |
| E-64a | Course Screen Pot | |
| E-64b | Fines Screen Pot | |
| E-65a | Coarse Screen Pot | |
| E-65b | Fines Screen Pot | |
| E-61a | Press Tank 4-S1 | STAR, 7.25 |
| E-61b | Press Tank 4-S2 | |
| E-71 | Filter Press 4S | STAR, 7.25 (BACT) |
| E-231 | Tank T-73 (Mill 5/6 Slurry Tank) | 2.05, STAR, 7.25 (BACT) |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E-56, E-57, E-62a, E-66a, E-66b, E-66c, E-64a, E-64b, E-65a, and E-65b, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions

cannot exceed the emission standards from Regulation 6.24 for Class II and Class III solvents. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points.)

(b) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 3.29 tons per 12 consecutive month period for Emission Point E-71. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 7.25. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points.)

(c) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points. This emission limit ensures PSD avoidance.)

(d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)

(e) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-61a and E-61b (U-13), E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23) E-272 (U-24), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

2) **PM**

(a) In accordance with Regulation 6.09, Table 1, PM standard for Emission Point E-56 is 2.58 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-57 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the

potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 6.09, section 3.1 and Regulation 7.08, section 3.1.1 establishes opacity standards.

l. **Emission Unit U-14 Aluminum Paste Dryers**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-82 | Vacuum Dryer #2 | STAR, 6.24 |
| E-84 | Vacuum Dryer #3 | |
| E-232 | Dryer 2/3 Holding Tank | STAR, 7.25 |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E-82 and E-84, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the lb/hr emission standards from Regulation 6.24 for Class II solvents; and the lb/hr and lb.day for Class III solvents. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission standards. But, the lb/day for Class II solvents can exceed uncontrolled, therefore, the permit contains by-pass event requirements for uncontrolled times.)

(b) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-61a and E-61b (U-13), E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23) E-272 (U-24), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

m. **Emission Unit U-15 Mixers**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-129 | Mixer 1 | 2.05, STAR, 7.25 (BACT) |
| E-130 | Mixer 2 | |
| E-131 | Mixer 3 | |
| E-132 | Mixer 4 | |
| E-133 | Mixer 5 | STAR, 6.24 |
| E-134 | Mixer 6 | 2.05, STAR, 7.25 (BACT) |
| E-135 | Mixer 7 | STAR, 7.25 |
| E-136 | Mixer 8 | 2.05, STAR, 7.25 (BACT) |
| E-137 | Mixer 9 | |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E-56, E-57, E-61a, E-61b, E-62a, E-66a, E-66b, E-66c, E-64a, E-64b, E-65a, and E-65b, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 6.24 for Class II and Class III solvents. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points.)

(b) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

(c) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points. This emission limit ensures PSD avoidance.)

(d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)

(e) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-61a and E-61b (U-13), E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23) E-272 (U-24), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

n. **Emission Unit U-16 AST (Aboveground Storage Tank) Farm**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-89 | AST 1 – Mineral Spirits from oleic acid | STAR, 7.12 |
| E-90 | AST 2 – Mineral Spirits from stearic acid | |
| E-91 | AST 3 – Non-Distillable Mineral Spirits | |
| E-92 | AST 4 – Mineral Spirits | |
| E-107 | AST 5 – High Flash Naphtha | |
| E-93 | AST 6 – Mineral Spirits OR-6 | |
| E-94 | AST 7 – Mineral Spirits OR-6 | |
| E-166 | AST 8 – Distillable Mineral Spirits | |
| E-167 | AST 9 – Distilled Mineral Spirits | |
| E-168 | AST 10 – Virgin Mineral Spirits | |
| E-169 | AST 11 – Used Mineral Spirits OR-6 | |
| E-108 | AST 12 – Diesel fuel | |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.

(b) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

o. **Emission Unit U-17 Stills**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-96 | Still 2 w/Condenser | STAR, 6.24 |
| E-97 | Still 3 w/Condenser | |
| E-98 | Still 2 – 3 Feed Tank | |
| E-99 | Vacuum Pump (Still 2 – 3) | |
| E-100 | Sludge Accumulator Tank | STAR, 7.25 |
| E-210 | Still 5 w/Condenser and Vacuum Pump | STAR, 7.25 (BACT) |
| E-240 | Still 6 w/Condenser & Vacuum Pump | |
| E-170 | Miscellaneous Tank (T-74) | |
| E-233 | Still Settling Tank (T-104) | |
| E-234 | Still Settling Tank (T-105) | |
| E-235 | Still 5 Feed Tank | |
| E-236 | Still 5 Cooling Tank | |
| E-237 | Still 5 Condensate Tank | |
| E-238 | Still 5 OWS | |
| E-239 | Still 6 Feed Tank | |
| E-241 | Still 6 Cooling Tank | |
| E-242 | Still 6 Condensate Tank | |
| E-243 | Still 6 OWS | |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission PointsE-96, E-97, E-98, and E-99, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 6.24 for Class II and Class III solvents for Emission Point E-98. Therefore, there are no monitoring, recordkeeping, or reporting requirements for this emission point. The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the lb/hr emission standards from Regulation 6.24 for Class II solvents; and the lb/hr and lb.day for Class III solvents for Emission Points E-96, E-97, and E-99. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission standards. But, the lb/day for Class II solvents can exceed uncontrolled, therefore, the permit contains by-pass event requirements for uncontrolled times for Emission Points E-96, E-97, and E-99.)

(b) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-210, E-240, E-170, E-233, E-234, E-235, E-236, E-237, E-238, E-239, E-241, E-242, and E-243), the owner or operator shall limit the VOC emissions to less than 3.794 ton per 12 consecutive month period.

(c) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-61a and E-61b (U-13), E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23) E-272 (U-24), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

p. **Emission Unit U-18 Parts Washers**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-172 | Cold Cleaner (secondary reservoir) | STAR, 6.18 |
| E-173 | Cold Cleaner (secondary reservoir) | |
| E-245 | Cold Cleaner #4 | |

ii. **Standards/Operating Limits**

1) **VOC**

Per Regulation 6.18, the owner or operator shall install, maintain, and operate the control equipment for Emission Points E-172, E-173, and E-245, shall observe specific operating requirements, and shall not operate a cold cleaner using a solvent with a vapor pressure that exceeds 1.0 mm Hg (0.019 psi) measured at 20°C (68°F).

q. **Emission Unit U-22 New Paste Process**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-62b | Tank RW1A (Slurry) | STAR, 6.24 |
| E-67 | Decanter 1 (Centrifuge) | |
| E-111 | Ball Mill 7 | 2.05, STAR, 7.08 7.25 (BACT) |
| E-112 | Ball Mill 8 | |
| E-113 | Ball Mill 9 | |
| E-114 | Ball Mill 10 | |
| E-115 | Ball Mill 11 | |
| E-178 | Ball Mill 12 | |
| E-116a through E-116x | 24 Vibratory Screens (Screens 1 through 20, 23 through 26) | 2.05, STAR, 7.25 (BACT) |
| E-117a through E-117dd | 30 Slurry Tanks (U-22 | |
| E-118a through E-118j | 10 Slurry Tanks (U-22 | |
| E-119a through E-119g | 7 Filter Presses (1-6, 10) | |
| E-120a & E-120b | 2 Filter Presses (7 & 8) | |
| E-121a, E-121b, E-121c | 3 Filter Presses (12 – 14) | |
| E-179a through E-179h | 8 Filtrate Tanks | |
| E-180 | Decanter 2 (Centrifuge) | |
| E-181 | Portable Rework Hopper | |
| E-270 | Vapor Recovery Condensate Tank | |
| E-246 | B06 Decanter Tank | STAR, 7.12 |
| E-247 | B07 Decanter Tank | |
| E-248 | B08 Decanter Tank | |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 6.24 limits the pound per hour and pound per day emissions of Class II and Class III solvents for Emission Points E-62b, and E-67, unless the emissions are reduced by at least 85%. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential VOC emissions cannot exceed the emission standards from Regulation 6.24 for Class II and Class III solvents for the emission points. Therefore, there are no monitoring, recordkeeping, or reporting requirements for these emission points)

(b) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points. This emission limit ensures PSD

avoidance.)

(c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)

(d) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.

(e) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

2) **PM**

In accordance with Regulation 7.08, Table 1, PM standard for Emission Points E-111, E-112, E-113, E-114, E-115, and E-178, is 2.34 lb/hr each for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 7.08, section 3.1.1 establishes opacity standards.

r. **Emission Unit U-23 Solvent Exchangers**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-123 | Additive Tank #1 | 2.05, STAR, 7.25 (BACT) |
| E-125 | Additive Tank# 2 (R01) | |
| E-126 | Additive Tank #3 (R02) | |
| E-127 | Vacuum Pump No. 1 | |
| E-252 | SE 1 Thermal Oil Tank | |
| E-253 | SE 2 Thermal Oil Tank | |
| E-184 | Additive Tank #4 (SE2) | STAR, 7.25 (BACT) |
| E-185 | Vacuum Pump No. 2 | |
| E-254 | SE 1 Condensate Tank | STAR, 7.25 |
| E-255 | SE 2 Condensate Tank | |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Per Regulation 2.05 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The

potential uncontrolled VOC emissions are over 25 tons for these mission points. This emission limit ensures PSD avoidance.)

(b) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions are limited to 40 tons per 12 consecutive month period for Emission Points E-231 (U-13); E-129, E-130, E-131, E-132, E-134, E-136, E-137 (U-15); E-111, E-112, E-113, E-114, E-115, E-116, E-117, E-118, E-178, E-119, E-120, E-121, E-270, E-179 a-h, E-180, E-181 (U-22); E-123, E-125, E-126, and E-127, E-252, E-253 (U-23). (The potential uncontrolled VOC emissions are over 25 tons for these mission points.)

(c) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-61a and E-61b (U-13), E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23) E-272 (U-24), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

(d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-184 and E-185 combined, the owner or operator shall limit the VOC emissions to less than 7.01 ton per 12 consecutive month period.

s. **Emission Unit U-24 Mills 13/14**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-186 | Ball Mill 13 | STAR, 7.08, 7.25 (BACT) |
| E-187 | Ball Mill 14 | |
| E-188a | Screen 21 | STAR, 7.25 (BACT) |
| E-188b | Screen 22 | |
| E-189a through E-189d | 4 Slurry Tanks | |
| E-190 | Mill 14 Recirculation Tank (T-57A) | |
| E-192 | Filter Press 16 | |
| E-193 | Filter Press 15 | |
| E-246 | B06 Decanter Tank | STAR, 7.12 |
| E-247 | B07 Decanter Tank | |
| E-248 | B08 Decanter Tank | |
| E-272 | R&D Mixer | STAR, 7.25 |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Point E-186, the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.

(b) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Point E-187, the

owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.

(c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-188, E-189, E-190, E-192, E-193 (U-24); E-195, E- E-197, E-198, E-199, E-200, E-249, E-250, and E-251 (U-25), the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.

(d) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-61a and E-61b (U-13), E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23) E-272 (U-24), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

(e) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.

(f) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

2) **PM**

(a) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-186 is 2.34 lb/hr for process throughput of 1,000 lb/hr or less. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

(b) In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-187 is:

$E = 3.59 \times (0.65)^{0.62} = 2.75$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 7.08, section 3.1.1 establishes opacity standards.

t. **Emission Unit U-25 Zinc Mill**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-196 | T-64 (Zinc Mineral Spirits Supply Tank) | STAR, 7.12 |
| E-194 | Ball Mill 20 | STAR, 7.08, 7.25 (BACT) |
| E-195a | Screen 27 | STAR, 7.25 (BACT) |
| E-195b | Screen 28 | |
| E-197a | T-67 (Zinc Mill Slurry Tank) | |
| E-197b | T-70 (Zinc Mill Press Tank) | |
| E-198 | T-66 (Zinc Mill Coarse Slurry Tank) | |
| E-199 | Filter Press 20 | |

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-200 | Mixer 20 | |
| E-251 | T-69 (Filter Press Filtrate Tank) | |
| E-249 | Zinc Mill Condensate Tank (T-65) | |
| E-250 | T-68 (Filtrate Tank) | |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.

(b) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

(c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Point E-194, the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.

(d) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-188, E-189, E-190, E-192, E-193 (U-24); E-195, E- E-197, E-198, E-199, E-200, E-249, E-250, and E-251 (U-25), the owner or operator shall limit the VOC emissions to less than 1 ton per 12 consecutive month period.

2) **PM**

In accordance with Regulation 7.08, Table 1, PM standard for Emission Point E-194 is 3.59 lb/hr for process throughput of 2,000 lb/hr. (The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions cannot exceed the PM emission standard.)

3) **Opacity**

Regulation 7.08, section 3.1.1 establishes opacity standards.

u. **Emission Unit U-27 Solvent Wash**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-223 | B03 Tank (Non Distillable Wash) | STAR, 7.12 |
| E-224 | B04 Tank (Distillable Wash) | |
| E-225 | Filter Press 21 (Non Distillable Wash) | STAR, 7.25 (BACT) |
| E-226 | Filter Press 22 (Distillable Wash) | |
| E-227 | B05 Tank (Non Distillable Filtrate) | STAR, 7.25 |
| E-228 | B06 Tank (Distillable Filtrate) | |

ii. **Standards/Operating Limits**

1) **VOC**

(a) Regulation 7.12, section 3.3 requires submerged fill if the materials have an as stored vapor pressure of 1.5 psia or greater.

(b) Regulation 7.12 applies due to the size of the tanks, however, since the vapor pressure as stored is less than 1.5 psia there are no applicable emission or equipment standards.

(c) Per Regulation 7.25 (BACT) and construction permit 36563-13-C, Effective 4/26/2013, for Emission Points E-225 and E-226, the owner or operator shall limit the combined VOC emissions to less than 1 ton per 12 consecutive month period.

(d) Per Regulation 7.25 and construction permit 36563-13-C, Effective 4/26/2013, VOC emissions from Emission Points E-61a and E-61b (U-13), E-232 (U-14), E-135 (U-15), E-100 (U-17), E-254 and E-255 (U-23) E-272 (U-24), and E-227, E-228 (U-27), the owner or operator shall limit the VOC emissions to less than 5.0 tons per 12 consecutive month period. (A BACT determination is required to be performed for any future construction/modification subject to Regulation 7.25 for any emissions outside of the 5 tpy limit.)

v. **Emission Unit U-28 Cooling Tower**

i. **Equipment**

| Emission Point | Description | Applicable Regulations |
|---|---|---|
| E-269 | Cooling Tower | 7.08 |

ii. **Standards/Operating Limits**

1) **Opacity**

Regulation 7.08, section 3.1 establishes and opacity standard.

2) **PM**

In accordance with Regulation 7.08, Table 1, PM standard Emission Point E-269 is:

$E = 3.59 \times (265.71)^{0.62} = 42.29$ lb/hr

(The source submitted a one-time demonstration on February 21, 2014 that shows the potential uncontrolled PM emissions for Emission Points E-269 cannot exceed the PM emission standard.)

## III. Other Requirements

**1. Temporary Sources:** The source did not request to operate any temporary facilities.

**2. Short Term Activities:** The source did not report any short term activities.

**3. Emissions Trading:** N/A

**4. Operational Flexibility:** The source did not request any operational flexibility for the emission points.

**5. Compliance History:**

| Incident Date | Regulations Violated | Result |
|---|---|---|
| 8/9/2006 | 2.03.5.2 Failure to Comply with District Permit | Board Order |
| 3/8/2011 | 2.16.5.2 Failure to Comply with Title V Permit | Board Order |
| 6/7/2011 | 2.03.5.2 Failure to Comply with District Permit | Board Order |
| 6/7/2011 | 2.03.1.2 Operating Equipment without a District Permit | Board Order |
| 6/7/2011 | 2.16.5.2 Failure to Comply with Title V Permit | Board Order |

**6. Calculation Methodology:**

The emission calculations for the various pieces of equipment associated with this permit are derived from stack test results, AP-42 emission factors, EPA's Emission Inventory Improvement Program, EPA guidance documents, mass balances and engineering judgments. Other calculation methodologies may be used after receiving written approval

from the District. See Appendix A for specific emission factors and Appendix B for control device efficiencies.

a. **AP-42 Emission factors**

- Combustion emissions (Chapter 1.4-1, 1.4-2, 1.4-3, & 1.4-4 (small boilers))
- Solid material transfer emissions
  - Chapter 11.19; Crushed Stone Processing and Pulverized Mineral Processing
  - Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore
- Liquid loading emissions
  - Chapter 5.2; Transportation And Marketing Of Petroleum Liquids
- Cooing Tower emissions
  - Chapter 13.4; Wet Cooling Towers
- Chapter 4.7; Waste Solvent Reclamation

b. **TANKS 4.09D**

Breathing and working losses for all storage and process tanks are estimated by using the computer software program to estimate volatile organic compound emissions.

c. **EIIP Volume II, Chapter 8**

Emission Inventory Improvement (EIIP) documents describe procedures and recommended approaches for estimating emissions. Chapter 8 is for "Paint, Ink, and Other Coating Manufacturing", but the techniques can be applied to other evaporation sources.

- Emission Model for Material Loading (Equation 8.4-1)
- Emission Model for Surface Evaporation (Equation 8.4-22)
- Emission Model for Sweep of Purge (Equation 8.4-32)

d. **EPA's OAQPS Guideline Series**

One in a series of reports which provide guidance on air pollution control techniques for limiting emissions of VOC from sources. In this case it was used to model emissions from the Stills (U-17).

- Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products", Document EPA-450/2-78-029, Appendix B, Equation 15.

e. **Stack testing**

Eckart has stack tested numerous emission points to determine PM and VOC emission rates. When other equipment is of a similar type, the emission rate is prorated based upon the equipment capacities. Emissions are calculated by multiplying these rates by the hours of operation of the equipment, and accounting for any control device efficiency.

f. **Engineering judgment**

Emission factors for the Filling Stations in Unit U-4 are engineering estimates from the Reynolds Metal Company June 29, 1995 Bin Fill Construction Permit Application. Since 1995, this plant has been purchased and is operated by Eckart Americas Corporation.

**7. Insignificant Activities:**

| Equipment | Qty | PTE(tpy) | Reg. Basis |
|---|---|---|---|
| Direct Heat Exchangers (U-1, U-2) | 4 | 1.20 (NOx) total | Regulation 1.02 |
| Air Slide Conveyor Pod (U-3) | 1 | 4.32 (PM) | Regulation 1.02 |
| Docking/Transfer Station (U-3) | 1 | 0.71 (PM) | Regulation 1.02 |
| Pressurized VOC Storage Vessels | 6 | 0 | Regulation 1.02, Appendix A |
| Research and Development Activities | 6 | 2.82 (VOC) total | Regulation 1.02, Appendix A |
| VOC Storage Vessels with Maximum Capacity of 250 Gallons or Less | 24 | 1.24 (VOC) total | Regulation 1.02, Appendix A |
| Above Ground Fuel Oil Storage Tanks | 1 | 0.09 (VOC) | Regulation 1.02, Appendix A |
| Cold solvent parts cleaners that are equipped with a secondary reservoir | 2 | 0.04 (VOC) total | Regulation 1.02, Appendix A |
| Blending & Repack (U-7) | 6 | 0.1 (PM) each | Regulation 1.02 |
| Miscellaneous Tanks (U-13, U-17, U-24, U-25) | 8 | 0.25 (VOC) total | Regulation 1.02 |
| Centrifuge & Rework Hopper (U-22) | 2 | 0.85 (VOC) total | Regulation 1.02 |
| R&D Mixer (U-24) | 1 | 0.21 (VOC) | Regulation 1.02 |

1) Insignificant Activities identified in District Regulation 1.02, Appendix A may be subject to size or production rate disclosure requirements.

2) Insignificant Activities identified in District Regulation 1.02, Appendix A shall comply with generally applicable requirements.

3) Activities identified in Regulation 1.02, Appendix A, may not require a permit and may be insignificant with regard to application disclosure requirements but may still have generally applicable requirements that continue to apply to the source and must be included in the permit.

4) Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.

5) In lieu of recording annual throughputs and calculating actual annual emissions, the owner or operator may elect to report the pollutant Potential To Emit (PTE) quantity listed in the Insignificant Activities table, as the annual emission for each piece of equipment.

6) The Insignificant Activities Table is correct as of the date the permit was proposed for review by U.S. EPA, Region 4.

7) The owner or operator shall submit an updated list of Insignificant Activities whenever changes in equipment located at the facility occur that cause changes to the plant wide emissions.

**8. IA Emission Units with Applicable Regulations**

a. **Emission Unit IA-EG**

i. **Equipment**

| Emission Point | Description | Applicable Regulation |
|---|---|---|
| IA –EG | Emergency diesel generators that installed after July 11, 2005 and manufactured after April 1, 2006, with a maximum engine power less than or equal to 500 | 40 CFR 63, Subpart ZZZZ, 40 CFR 60, |

| Emission Point | Description | Applicable Regulation |
|---|---|---|
| | HP and located at an area source of HAP. | Subpart IIII |

ii. **Standards/Operating Limits**

1) **Unit Operation**

(a) 40 CFR 60.4202 and 4205 establish emission standards for the owner or operator or manufacturer of the emergency stationary CI ICE.

(b) 40 CFR 60.4211 establishes unit operation requirements for emergency stationary CI ICE.

2) **Fuel requirements**

40 CFR 60.4207 establishes requirement for nonroad diesel fuel.

iii. **Monitoring and Record Keeping**

1) **Unit Operation**

40 CFR 60.4209(a) and 4214(b) establish monitoring and record keeping requirements for emergency stationary CI ICE.

iv. **Reporting**

1) **Unit Operation**

40 CFR 60.4214 establish reporting requirements for emergency stationary CI ICE.

## 9. Appendix A – Emission Factors and Calculation Methodologies

Emissions are calculated by multiplying the throughput (ton, MMCF, etc) or hours of operation of the equipment by the appropriate emission factor and by 1 minus any control device's efficiency.

a. **Table 1 Unit U-1: Boiler Room & U-2: Hot Air Furnace**

| Equipment | Emission Point | Emission Factor Source |
|---|---|---|
| Boiler #5 | E-1 | AP-42 Chapter 1.4-1, 1.4-2, 1.4-3, & 1.4-4 (small boilers) |
| Boiler #4 | E-2 | |
| Space Heater | E-138 | |
| Nozzle Heater | E-140 | |
| Space Heater | E-266 | |

b. **Table 2 Unit U-2: Hot Air Furnace**

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| Atomization Furnace | E-3 (S-4) | 82.84 lb/ton (uncontrolled)<br>10.77 lb/ton (multicyclone controlled) | **April 2012** Stack Test on Control Points E-5 and E-7 |
| | E-3 (S-5) | 84.84 lb/ton (uncontrolled)<br>9.60 lb/ton (multicyclone controlled) | |
| M-7 & M-8 Screen Rooms | E-4 & E-6 | 0.12 lb/ton (uncontrolled) | AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore |
| Multicyclone Drum Loading | E-5a & E-7a | | |

c. **Table 3 Unit U-3: Hot Air Direct Convey and Air Slide System**

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| Buhler A Storage Tank | E-8a | 17.27 lb/ton (uncontrolled)<br>2.59 lb/ton (cyclone controlled)<br>0.042 lb/ton (cyclone & mesh filter) | April 2012 Stack Test on Emission Point E-8 |
| Buhler A Weigh Tank | E-8b | 0.12 lb/ton (uncontrolled)<br>0.018 lb/ton (cyclone controlled)<br>0.001 lb/ton (cyclone & mesh filter) | AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore |
| Buhler A Conveyor Pod | E-8c | | |
| Rail Car Loading | E-9 | 15.54 lb/ton (uncontrolled)<br>2.33 lb/ton (cyclone controlled)<br>0.036 lb/ton (cyclone & mesh filter) | April 2012 Stack Test for E-8 and prorated |
| Air Slide Conveyor Pod | E-141 | 0.73 lb/ton (uncontrolled)<br>0.09 lb/ton (mesh filter controlled) | AP-42 Chapter 11.12; Concrete Batching; Pneumatic Cement Unloading to Elevated Bin |
| Docking/ Transfer Station | E-229 | 0.12 lb/ton (uncontrolled)<br>0.02 lb/ton (mesh filter controlled) | AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore |

d. **Table 4 Unit U-4: Hot Air Bin Fill**

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| Storage Tanks | E-11 & E-12 | 5.72 lb/ton (uncontrolled)<br>0.86 lb/ton (cyclone controlled)<br>0.11 lb/ton (cyclone & mesh filter) | **October 2008** Stack Test for E-128 (U-6) and prorated based upon capacity |
| Filling Station | E-13 & E-15 | 0.12 lb/ton (uncontrolled)<br>0.018 lb/ton (cyclone controlled)<br>0.002 lb/ton (cyclone & mesh filter) | AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore |

e. **Table 5 Unit U-6: Classifier**

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| 15,000 lb Tank | E-25 | 4.77 lb/ton (uncontrolled)<br>0.71 lb/ton (cyclone controlled)<br>0.093 lb/ton (cyclone & mesh filter) | **October 2008** Stack Test for E-128 and prorated |
| Classifier 1 Weigh Tank | E-26a | 0.12 lb/ton (uncontrolled) | AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore |
| Fines Bin | E-26b | 0.12 lb/ton (uncontrolled)<br>0.018 lb/ton (cyclone controlled)<br>0.002 lb/ton (cyclone & mesh filter) | |
| Buhler C Conveyor Pod | E-26c | | |
| Drum Loading | E-26d | | |

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| Buhler B Conveyor Pod | E-128b1 | | |
| Classifier 2 Weigh Tank | E-128b2 | 0.12 lb/ton (uncontrolled) | |
| 30,000 lb Tank | E-128 | 6.36 lb/ton (uncontrolled)<br>0.95 lb/ton (cyclone controlled)<br>0.124 lb/ton(cyclone & mesh filter) | **October 2008** Stack Test |

f. **Table 6 Unit U-7: Blending/Repack**

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| Gemco Tumble Blender | E-27 | 0.12 lb/ton (fugitive) | AP-42 Chapter 11.24; Metallic Mineral Processing; Material Handling and Transfer - low moisture ore |
| Double/Single Drum Tumbler | E-143 | | |
| Drum Dumper | E-147 | | |
| Vibrating Screen | E-148 | | |
| Screw Conveyor | E-230 | | |
| Hopper | E-145 | | |
| Bucket Fill (Feed Screw) | E-146 | | |

g. **Table 7 Unit U-8: Rescreen Operation**

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| Flake 100 Drum/Tote Unloading | E-150 | 0.21 lb/ton (uncontrolled)<br>0.0015 lb/ton (mesh filter controlled) | **August 2006** Stack Test of Flake 100 Staging Vessel (E-152) |
| Flake 100 Staging Vessel | E-152 | | |
| Flake 100 Rescreener | E-154 | | |
| Flake 100 Drum Loading | E-156 | | |
| Powder 200 Drum/Tote Unloading | E-158 | | |
| Powder 200 Staging Vessel | E-160 | | |
| Powder 200 Rescreener | E-162 | | |
| Powder 200 Drum Loading | E-164 | | |

h. **Table 8 Unit U-13: Aluminum Paste Process**

| Equipment | Emission Point | VOC Emission Factor/Rate | Determination Method |
|---|---|---|---|
| Ball Mill #5 | E-56 | 0.79 lb/hr (uncontrolled) | **July 2013** Stack Test of |

| Equipment | Emission Point | VOC Emission Factor/Rate | Determination Method |
|---|---|---|---|
| Ball Mill #6 | E-57 | 0.066 lb/hr (controlled) | Ball Mill #5 for both controlled and uncontrolled emission factors |
| Press Tank 4-S1 | E-61a | 0.11 lb/hr each (fugitive) | EIIP Volume II, Chapter 8, Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities (surface evaporation emission model) |
| Press Tank 4-S2 | E-61b | | |
| T-72 (Mill 6 Overflow Tank) | E-62a | 0.089 lb/hr (fugitive) | |
| Course Screen Pot | E-64a | 0.22 lb/hr (fugitive) | |
| Fines Screen Pot | E-64b | 0.084 lb/hr (fugitive) | |
| Course Screen Pot<br>Fines Screen Pot | E-65a, b | 0.23 lb/hr each (fugitive) | |
| Mill 5/6 Slurry Tank | E-231 | 0.0040 lb/hr (fugitive) | TANKS 4.0.9.d |
| Filter Press 4S | E-71 | 0.75 lb/hr (fugitive) | EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading |
| Screens 29, 30, 31 | E-66a, b, c | 0.021 lb/hr each (fugitive) | EIIP Volume II, Chapter 8, Methods for Estimating Air Emissions from Paint, Ink, and Other Coating Manufacturing Facilities (surface evaporation emission model) |

i. **Table 9 Unit U-14: Aluminum Paste Dryers**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Vacuum Dryers #2, #3 | E-82, E-84 | 0.0 lb/hr | All VOC emissions are discharged out the vacuum pumps |
| Condenser/Vacuum Pump Nos. 2, 3 | E-83, E-85 | 2.2 lb/hr (uncontrolled)<br>0.12 lb/hr (controlled) | **August 2006** Stack Test of E-83 for uncontrolled emission factor; **July 2013** Stack Test of E-83 for controlled emission factor |
| Dryer 2/3 Holding Tank | E-232 | 0.000071 lb/hr | TANKS 4.0.9.d |

j. **Table 10 Unit U-15: Mixers**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Mixer 1<br>through<br>Mixer 9 | E-129<br>through<br>E-137 | 0.0015 lb/hr (uncontrolled)<br>0.0001 lb/hr (controlled) | **July 2013** Stack Test of Mixer 2 for both controlled and uncontrolled emission factors |

k. **Table 11 Unit U-16: AST (Aboveground Storage Tank) Farm**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| AST 1 – 4;<br>6 – 11 | E-89 - E-94,<br>E-166 – E-169 | 0.021 lb/hr | TANKS 4.0.9.d |
| AST 5 | E-107 | 0.0033 lb/hr | |

l. **Table 12 Unit U-17: Mineral Spirit Stills**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Stills (2 & 3) | E-96, E-97 | All VOC emissions from E-96 & E-97 are discharged out the Vacuum Pump (E-99) | AP-42 Chapter 4.7 Waste Solvent Reclamation for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factor |
| Still 2-3 Feed Tank | E-98 | 0.14 lb/hr (fugitive) | EIIP Volume II, Chapter 8, Surface Evaporation Emission Model |
| Vacuum Pump (Still 2 – 3) | E-99 | 3.79 lb/hr (uncontrolled)<br>0.31 lb/hr (controlled) | AP-42 Chapter 4.7 Waste Solvent Reclamation for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factor |
| Sludge Accumulator Tank | E-100 | 0.0056 lb/hr (uncontrolled)<br>0.00046 lb/hr (controlled) | TANKS 4.0.9d for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factors |
| Miscellaneous Tank (T-74) | E-170 | 0.0084 lb/hr (uncontrolled)<br>0.00070 lb/hr (controlled) | |
| Still Settling Tanks (T-104 & T-105) | E-233 & E-234 | 0.012 lb/hr (uncontrolled)<br>0.00098 lb/hr (controlled) | |
| Feed Tanks (Still 5 & 6) | E-235 & E-239 | 0.0090 lb/hr (uncontrolled)<br>0.00075 lb/hr (controlled) | |
| Cooling & Condensate Tanks and OWSs (Still 5 & 6) | E-236, E-237, E-238;<br>E-241, E-242, E-243 | 0.0082 lb/hr (uncontrolled)<br>0.00068 lb/hr (controlled) | |
| Vacuum Pumps (Still 5 & 6) | E-210 & E-240 | 0.62 lb/hr (uncontrolled)<br>0.051 lb/hr (controlled) | EPA Document EPA-450/2-78-029, "Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products" for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factors |

m. **Table 13 Unit U-18: Parts Washers**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Parts washers with secondary reservoir | E-172, E-173, | 0.0042 lb/hr (fugitive) | EIIP Volume II, Chapter 8.4, Emission Model for Surface Evaporation, Equation 8.4-22 |
| Parts washers without secondary reservoir | E-245 | 0.20 lb/hr (fugitive) | |

n. **Table 14 Unit U-22: New Paste Process**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Tank RW1A | E-62b | 0.0059 lb/hr (uncontrolled)<br>0.00049 lb/hr (controlled) | TANKS 4.0.9d for uncontrolled emission factors;<br>July 2013 Stack Test for controlled emission factors |
| Filtrate Tanks | E-179a-h | 0.029 lb/hr each (uncontrolled)<br>0.019 lb/hr each (controlled) | |
| Vapor Recovery Condensate Tank | E-270 | 0.00012 lb/hr (fugitive) | |
| Decanter Tanks; B06, B07, B08 | E-246, E-247, E-248 | 0.00023 lb/hr (uncontrolled)<br>0.000019 lb/hr (controlled) | |
| Ball Mills 7 through 10 | E-111, E-112, E-113, E-114 | 0.42 lb/hr (uncontrolled)<br>0.035 lb/hr (controlled) | **July 2013** Stack Test of Ball Mill 7 for both controlled and uncontrolled emission factors |
| Ball Mills 11, 12 | E-115, E-178 | 0.74 lb/hr (uncontrolled)<br>0.061 lb/hr (controlled) | **July 2013** Stack Test of Ball Mill 12 for both controlled and uncontrolled emission factors |
| Vibratory Screen | E-116 | 0.0016 lb/hr each (uncontrolled)<br>0.00013 lb/hr each (controlled) | EIIP Volume II, Chapter 8.4, Emission Model for Surface Evaporation, Equation 8.4-22;<br>July 2013 Stack Test for controlled emission factors |
| Portable Rework Hopper | E-181 | 0.19 lb/hr (fugitive) | |
| 30 Slurry Tanks | E-117a – E-117dd | 0.094 lb/hr each (uncontrolled)<br>0.0075 lb/hr each (controlled) | AP-42, Chapter 5.2 "Transportation And Marketing Of Petroleum Liquids" equation for loading and unloading of petroleum liquids;<br>July 2013 Stack Test for controlled emission factors |
| 10 Slurry Tanks | E-118a – E-118j | | |
| Filter Presses 1-6 & 10 | E-119a – E-119g | 0.45 lb/hr each (uncontrolled)<br>0.037 lb/hr each (controlled)<br>0.034 lb/hr each (fugitive) | EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading; |

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Filter Presses 7 & 8 | E-120a, E-120b | 0.21 lb/hr each (uncontrolled)<br>0.0165 lb/hr each (controlled)<br>0.016 lb/hr each (fugitive) | July 2013 Stack Test for controlled emission factors |
| Filter Presses 12 – 14 | E-121a, E-121b, E-121c | 0.59 lb/hr each (uncontrolled)<br>0.05 lb/hr each (controlled)<br>0.046 lb/hr each (fugitive) | |
| Decanter 1 (Centrifuge) | E-67 | 0.0046 lb/hr (fugitive) | EIIP Volume II, Chapter 8, Gas Sweep of Purge Emission Model |
| Decanter 2 (Centrifuge) | E-180 | 0.0050 lb/hr (fugitive) | |

o. **Table 15 Unit U-23: Solvent Exchangers**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Additive Tank 1 | E-123 | 0.00037 lb/hr (uncontrolled)<br>0.000031 lb/hr (controlled) | TANKS 4.0.9d for uncontrolled emission factors;<br>**July 2013** Stack Test of E-185 for controlled emission factors |
| Solvent Exchanger (SE) Condensate Tanks 1 & 2 | E-254, E-255 | | |
| Additive Tank 2 (R01) | E-125 | 0.00071 lb/hr (uncontrolled)<br>0.000059 lb/hr (controlled) | |
| Additive Tank 3 (R02) | E-126 | | |
| Solvent Exchanger Vacuum Pump 1 | E-127 | 0.114 lb/hr (uncontrolled)<br>0.01 lb/hr (controlled) | **July 2013** Stack Test of E-185 for controlled and uncontrolled emission factors |
| Solvent Exchanger Vacuum Pump 2 | E-185 | | |
| Solvent Exchanger 1 Thermal Oil Tanks 1 & 2 | E-252 | 0.00029 lb/hr each (fugitive) | TANKS 4.0.9d for uncontrolled emission factors;<br>**July 2013** Stack Test of E-185 for controlled emission factors |
| | E-253 | | |
| Additive Tank 4 (SE2) | E-184 | 0.00049 lb/hr (uncontrolled)<br>0.000041 lb/hr (controlled) | |

p. **Table 16 Unit U-24: Mills 13/14**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Ball Mill 13 | E-186 | 0.11 lb/hr (uncontrolled)<br>0.009 lb/hr (controlled) | **July 2013** Stack Test of U-22 Ball Mill 7 (E-111) and prorated based upon capacity for both controlled and uncontrolled emission factors |
| Ball Mill 14 | E-187 | 0.32 lb/hr (uncontrolled)<br>0.027 lb/hr (controlled) | |

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Vibratory Screens 21 & 22 | E-188a & E-188b | 0.0016 lb/hr each (uncontrolled)<br>0.000135 lb/hr (controlled) | EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22 for uncontrolled emission factor;<br>**July 2013** Stack Test for controlled emission factor |
| 4 Slurry Tanks (T-54, T-55, T-56, T-57) | E-189a through E-189d | 0.0018 lb/hr each (uncontrolled)<br>0.00015 lb/hr each (controlled) | TANKS 4.0.9d for uncontrolled emission factors;<br>**July 2013** Stack Test for controlled emission factors |
| Mill 14 Recirculation Tank | E-190 | 0.0024 lb/hr (uncontrolled)<br>0.00020 lb/hr (controlled) | |
| Mill 14 Filter Press | E-192 | 0.23 lb/hr (uncontrolled)<br>0.019 lb/hr (controlled)<br>0.02 lb/hr (fugitive) | EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading for uncontrolled emission factors;<br>**July 2013** Stack Test for controlled emission factors |
| Mill 13 Filter Press | E-193 | 0.10 lb/hr (uncontrolled)<br>0.0083 lb/hr (controlled)<br>0.01 lb/hr (fugitive) | |
| Decanter Tanks; B06, B07, B08 | E-246, E-247, E-248 | 0.00023 lb/hr (fugitive) | TANKS 4.0.9d |
| R&D Mixer | E-272 | 0.048 lb/hr (fugitive) | EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22 |

q. **Table 17 Unit U-25: Zinc Mills**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| Ball Mill 20 | E-194 | 0.55 lb/hr (uncontrolled)<br>0.05 lb/hr (controlled) | **July 2013** Stack Test of U-22 Ball Mill 12 (E-178) and prorated based upon capacity for both controlled and uncontrolled emission factors |
| 2 Vibratory Screens | E-195a & E-195b | 0.0016 lb/hr each (uncontrolled)<br>0.00014 lb/hr each (controlled) | EIIP Volume II, Chapter 8, Emission Model for Surface Evaporation, Equation 8.4-22 for uncontrolled emission factors;<br>**July 2013** Stack for controlled emission factors |
| Mineral Spirits Supply Tank (T-64) | E-196 | 0.0030 lb/hr (uncontrolled)<br>0.00025 lb/hr (controlled) | TANKS 4.0.9d for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factors |
| 2 Slurry Tanks (T-67, T-70) | E-197a & E-197b | 0.029 lb/hr each (uncontrolled) | AP-42, Section 5.2 equation for loading and unloading of |

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| 1 Slurry Tank (T-66) | E-198 | 0.0024 lb/hr each (controlled) | petroleum liquids for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factors |
| Filter Press | E-199 | 0.42 lb/hr (uncontrolled)<br>0.035 lb/hr (controlled)<br>0.030 lb/hr (fugitive) | EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factors |
| Mixer 20 | E-200 | 0.0015 lb/hr (uncontrolled)<br>0.00012 lb/hr (controlled) | **July 2013** Stack Test of U-15 Mixer 2 (E-130) for both controlled and uncontrolled emission factors |
| Filtrate Tank (T-69 ) | E-251 | 0.00089 lb/hr (uncontrolled)<br>0.000074 lb/hr (controlled) | TANKS 4.0.9d for uncontrolled emission factors; **July 2013** Stack Test controlled emission factors |
| Zinc Mill Condensate Tank (T-65) | E-249 | 0.00010 lb/hr (uncontrolled)<br>0.0000083 lb/hr (controlled) | |
| Filtrate Tank (T-68) | E-250 | | |

r. **Table 18 Unit U-27: Solvent Wash**

| Equipment | Emission Point | VOC Emission Factor | Determination Method |
|---|---|---|---|
| B03 Tank | E-223 | 0.00071 lb/hr (uncontrolled)<br>0.000059 lb/hr (controlled) | TANKS 4.0.9d for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factor |
| B04 Tank | E-224 | | |
| Filter Press 1 | E-225 | 0.44 lb/hr (uncontrolled)<br>0.037 lb/hr (controlled)<br>0.030 lb/hr (fugitive) | EIIP Volume II, Chapter 8 surface evaporation, gas sweep and material loading for uncontrolled factors; **July 2013** Stack Test for controlled emission factor |
| Filter Press 2 | E-226 | 0.33 lb/hr (uncontrolled)<br>0.027 lb/hr (controlled)<br>0.020 lb/hr (fugitive) | |
| B05 Tank | E-227 | 0.00037 lb/hr (uncontrolled)<br>0.000031 lb/hr (controlled) | TANKS 4.0.9d for uncontrolled emission factors; **July 2013** Stack Test for controlled emission factor |
| B06 Tank | E-228 | | |

s. **Table 19 Unit U-28: Cooling Tower**

| Equipment | Emission Point | PM Emission Factor | Determination Method |
|---|---|---|---|
| Cooling Tower | E-269 | 0.019 lb/1,000 gal OR<br>1.21 lb/hr (fugitive) | AP-42, Chapter 13.4: Wet Cooling Towers |

## 10. Appendix B – Control Device Efficiencies and Determination Methods[1,2]

a. **Emission Points controlled by Cyclones**

| Unit ID | Emission Point ID | Emission Point Description | Control ID | Efficiency | Determination Method |
|---|---|---|---|---|---|
| U-2 | E-3 | Atomization Furnace | C-E-5 | 87% | Option 3 |
| | | | C-E-7 | 89% | Option 3 |
| U-3 | E-9 | Rail Car Loading | C-E-9 | 85% | Option 1 |
| | E-8 | Buhler A Conveyor Pod | C-E-8 | 85% | Option 1 |
| U-4 | E-11 | Large Powder Storage Tank 1 | C-E-11 | 85% | Option 1 |
| | E-13 | Tote/Drum Fill Station #1 | | | |
| | E-12 | Large Powder Storage Tank 2 | C-E-12 | 85% | Option 1 |
| | E-15 | Tote/Drum Fill Station #2 | | | |
| U-6 | E-25 | 15,000 lb Powder Storage Tank | C-E-25 | 85% | Option 1 |
| | E-26b, c, d | Two holding tanks, Drum Loading | | | |
| | E-128 | 30,000 lb Powder Storage Tank | C-E-128 | 85% | Option 1 |
| | E-128b1 | Buhler B Conveyor Pod | | | |

b. **Emission Points controlled by Metal Mesh Filters**

| Unit ID | Emission Point ID | Emission Point Description | Control ID | Efficiency | Determination Method |
|---|---|---|---|---|---|
| U-3 | E-229 | Docking/Transfer Station | C-F-005 | 87% | Option 3 |
| | E-141 | Air Slide Conveyor Pod | | | |
| | E-9 | Rail Car Loading | C-F-006 | 87% | Option 3 |
| | E-8 | Buhler A Conveyor Pod | C-F-007 | 87% | Option 3 |
| U-4 | E-11 | Large Powder Storage Tank 1 | C-F-008 | 87% | Option 3 |
| | E-13 | Tote/Drum Fill Station #1 | | | |
| | E-12 | Large Powder Storage Tank 2 | C-F-009 | 87% | Option 3 |
| | E-15 | Tote/Drum Fill Station #2 | | | |
| U-6 | E-25 | 15,000 lb Powder Storage Tank | C-F-010 | 87% | Option 3 |
| | E-26b, c, d | Two holding tanks, Drum Loading | | | |
| | E-128 | 30,000 lb Powder Storage Tank | C-F-011 | 87% | Option 3 |
| | E-128b1 | Buhler B Conveyor Pod | | | |
| U-8 | E-150 | Flake 100 Drum/Tote Unloading | C-E-153 | 99.32% | Option 3 |
| | E-152 | Flake 100 Staging Vessel | | | |
| | E-154 | Flake 100 Rescreener | C-E-155 | 99.32% | Option 3 |
| | E-156 | Flake 100 Drum Loading | C-E-157 | 99.32% | Option 3 |
| | E-158 | Powder 200 Drum/Tote Unloading | C-E-161 | 99.32% | Option 3 |
| | E-160 | Powder 200 Staging Vessel | | | |
| | E-162 | Powder 200 Rescreener | C-E-163 | 99.32% | Option 3 |
| | E-164 | Powder 200 Drum Loading | C-E-165 | 99.32% | Option 3 |

c. **Emission Points controlled by Condensers**

| Unit ID | Emission Point ID | Emission Point Description | Control ID | Efficiency | Determination Method |
|---|---|---|---|---|---|
| U-14 | E-82 | Vacuum Dryer #2 | C-E-83 | 95% | Option 3 |
| | E-84 | Vacuum Dryer #3 | C-E-85 | | |

d. **SVR System (Dual Stage Condenser with Liquid/Vapor Separator)**

| Control ID | Description | Performance Indicator | Range | Efficiency | Determination Method |
|---|---|---|---|---|---|
| C-9 | SVR System (Dual Stage Condenser with Liquid/Vapor Separator) | Temperature | | | Option 3 |
| | | (Second Stage) | < 26 °F | 91.7% | |
| | | (Second Stage) | 26 °F - 30 °F | 89% | |
| | | (Only One Stage Operations) | 30 °F - 35 °F | 75% | |
| | | (No Stage Operation) | > 35 °F | 0% | |

Note:

1. Options for control efficiency determination:
   Option 1: Use District pre-approved control efficiency
   Option 2: Submit a signature guarantee from the control device manufacture stating the control device efficiency
   Option 3: Perform stack test. See Plant-wide Specific Conditions S4.a. for general testing requirements.

2. Until the District receives a signature guarantee from the control device manufacturer stating the control device efficiency is higher (Option 2), or an approved stack test (Option 3), the pre-approved efficiency (Option 1) will be used in all calculations to demonstrate compliance with applicable standards and calculations for emission inventory.